SPEC® CFP2006 Result

Huawei

Huawei CH222 V3 (Intel Xeon E5-2667 v4)

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<th>SPECfp\textsuperscript{®} rate\textsubscript{2006}</th>
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CPU\textsubscript{2006} license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

SPEC has determined that this result is not in compliance with the SPEC CPU\textsubscript{2006} run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

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Non-Compliant
SPEC CFP2006 Result

Huawei

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SPECfp_rate_base2006 = NC

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CPU Name: Intel Xeon E5-2667 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 3200
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 1, 2 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 25 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x 1 T SATA, 7200 RPM
Other Hardware: None

Software
Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo) 3.10.0-123.el7.x86_64
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

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http://www.spec.org/
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Huawei CH222 V3 (Intel Xeon E5-2667 v4)

SPEC CFP2006 Result

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Results Table

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

---

SPEC CFP2006 Result

Huawei CH222 V3 (Intel Xeon E5-2667 v4)

SPECfp_rate2006 = NC
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Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Performance
Set Snoop Mode to ES mode
Set Patrol Scrub to Disable
Sysinfo program /speccpu/spec16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb686 seqa285b2ceab81e28219e1
running on localhost.localdomain Tue Mar 29 20:45:56 2016

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2667 v4@ 3.20GHz
2 "physical id"s (chips)
32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 8
siblings : 16
physical 0: cores 2 3 4 8 10 11 12
physical 1: cores 2 3 4 8 10 11 12
cache size : 25600 KB

From /proc/meminfo
MemTotal: 63569320 kB
Buffers:Total: 0
Huge pages:Total: 2048 kB

From /etc/*release* /etc/*version*
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME=cpe:/o:redhat:enterprise_linux:7.0:GA:server
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

Continued on next page
## Huawei CH222 V3 (Intel Xeon E5-2667 v4)

### SPEC has determined that this result is not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the memory was not available as required by SPEC CPU rule 1.3.2 and the SPEC Open Systems Group policy on general availability.

### General Notes

Environment variables set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/speccpu/spec16/libs/32:/speccpu/spec16/libs/64:/speccpu/spec16/sh"
```

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory.

Transparent Huge Pages enabled with:
```
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

Filesystem page cache cleared with:
```
echo 1 > /proc/sys/vm/drop_caches
```

runcspec command invoked through numactl i.e.:
```
numactl --interleave=all runspec <etc>
```

The Huawei CH121 V3 and Huawei CH222 V3 are electronically equivalent.

The results have been measured on a Huawei CH121 V3 model.
Huawei

Huawei CH222 V3 (Intel Xeon E5-2667 v4)

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Base Compiler Invocation

C benchmarks:
icc  -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc  -m64 ifort -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc   : -DSPEC_CPU_LP64
434.zeusmp : -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd   : -DSPEC_CPU_LP64 -nofor_main
447.dealII : -DSPEC_CPU_LP64
450.soplex : -DSPEC_CPU_LP64
453.povray : -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto   : -DSPEC_CPU_LP64
470.lbm    : -DSPEC_CPU_LP64
481.wrf    : -DSPEC_CPU_LP64
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Continued on next page
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Base Optimization Flags (Continued)

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -Tcc-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks (except as noted below):
icpc -m64

450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64

Continued on next page
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**Peak Portability Flags (Continued)**

450.soplex: \(-D\_FILE\_OFFSET\_BITS=64\)
453.povray: \(-DSPEC\_CPU\_LP64\)
454.calculix: \(-DSPEC\_CPU\_LP64 \ -no\_for\_main\)
459.GemsFDTD: \(-DSPEC\_CPU\_LP64\)
465.tonto: \(-DSPEC\_CPU\_LP64\)
470.lbm: \(-DSPEC\_CPU\_LP64\)
481.wrf: \(-DSPEC\_CPU\_LP64 \ -DSPEC\_CPU\_CASE\_FLAG \ -DSPEC\_CPU\_LINUX\)
482.sphinx3: \(-DSPEC\_CPU\_LP64\)

**Peak Optimization Flags**

C benchmarks:

433.milc: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: \(-xCORE\-AVX2(pass 2) \ -prof\-gen:threadsafe(pass 1) \ -ipo(pass 2) \ -O3(pass 2) \ -no-prec-div(pass 2) \ -par-num-threads=1(pass 1) \ -opt-mem-layout-trans=3(pass 2) \ -prof-use(pass 2) \ -fno-alias \ -auto-ilp32\)
447.dealII: basepeak = yes
450.soplex: \(-xCORE\-AVX2(pass 2) \ -prof\-gen:threadsafe(pass 1) \ -ipo(pass 2) \ -O3(pass 2) \ -no-prec-div(pass 2) \ -par-num-threads=1(pass 1) \ -opt-mem-layout-trans=3(pass 2) \ -prof-use(pass 2) \ -opt-malloc-options=3\)
453.povray: \(-xCORE\-AVX2(pass 2) \ -prof\-gen:threadsafe(pass 1) \ -ipo(pass 2) \ -O3(pass 2) \ -no-prec-div(pass 2) \ -par-num-threads=1(pass 1) \ -opt-mem-layout-trans=3(pass 2) \ -prof-use(pass 2) \ -unroll4 \ -ansi-alias\)

Fortran benchmarks:

Continued on next page
Huawei CH222 V3 (Intel Xeon E5-2667 v4)

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Peak Optimization Flags (Continued)

410.bwaves: basepeak = yes
416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -03(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll12 -inline-level=0 -scalar-rep-
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: basepeak = yes
465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -03(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll14 -auto -inline-calloc -opt-malloc-options=3
435.gromacs: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -03(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32
436.cactusADM: basepeak = yes
454.calculix: basepeak = yes
481.wrf: basepeak = yes

Benchmarks using both Fortran and C:

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/Flags/Huawei-Platform-Settings-BDW-V1.0.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-BDW-V1.0.xml

Non-Compliant

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
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